

The answers are the
last 5 pages.

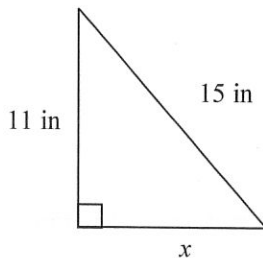
Geometry Ch 2 Review Packet

Name: _____

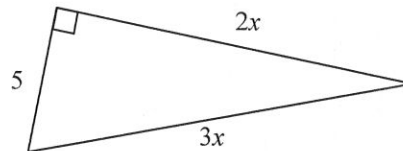
Date: _____ Per: _____

1. Find the value of x in each of the following.

a.

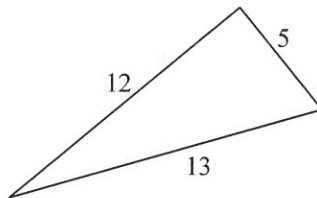


b.

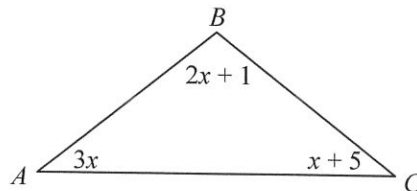


2. Write a sentence **explaining** under what conditions you can use the Pythagorean theorem.

3. Martha says must be right triangle. George says she can't know that for sure; she shouldn't trust that the drawing is drawn correctly. Who is correct? Explain.



4. While working on a team quiz, Anna, Bella, and Cortez came across the following problem:



Solve for x and then find the measure of each angle. Bella quickly solved the problem and told her team "Hey! I got it! $m\angle A = 93^\circ$, $m\angle B = 63^\circ$, and $m\angle C = 36^\circ$. Done!" Anna and Cortez are suspicious. Does Bella have the correct answer, or are Anna and Cortez correct to be suspicious? Explain completely.

5. Opposite sides of equal angles in an isosceles triangle are

- A. Equal
- B. Complementary
- C. Supplementary
- D. None of These

6. Which of the following can be lengths for a triangle?

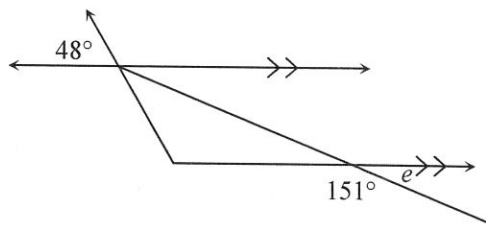
I. 5, 6, 9

II. 4, 8, 12

III. 7, 8, 17

- A. I only
- B. II only
- C. III only
- D. I and II
- E. I and III

7. Examine the diagram below. Then use the information provided in the diagram to find the measures of angles a through g . For each angle, name the angle relationship that helped justify your conclusion.



8. Given parallel lines cut by a transversal, corresponding angles are:

- A. Equal
- B. Supplementary
- C. Complementary
- D. Perpendicular

9. Two angles are complementary if

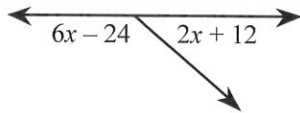
- A. They are equal
- B. They sum to 90°
- C. They sum to 180°
- D. They are perpendicular

10. The formula to find the area of a parallelogram is

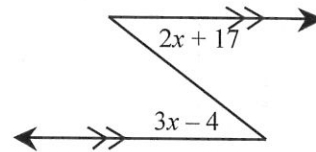
- A. $\frac{1}{2}bh$
- B. $\frac{1}{2}(b_1 + b_2)h$
- C. bh
- D. $a^2 + b^2 = c^2$

11. For each diagram calculate the value of x . Show your work and include an explanation of what you used (definitions and theorems) to solve the problem. Justify your work.

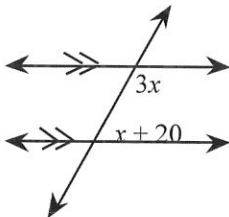
a.



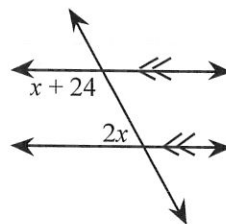
b.



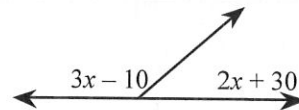
c.



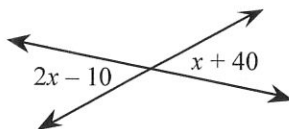
d.



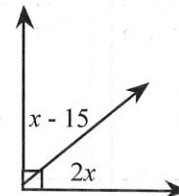
e.



f.

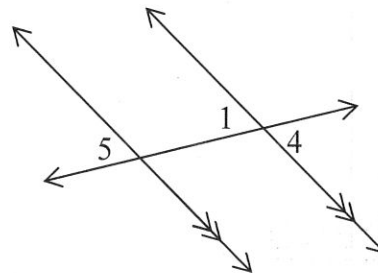


g.



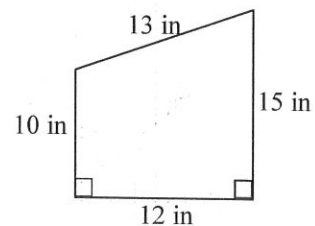
12. $\angle 6$ and $\angle 1$ are _____ angles.

- A. Corresponding
- B. Vertical
- D. Supplementary
- E. None of these



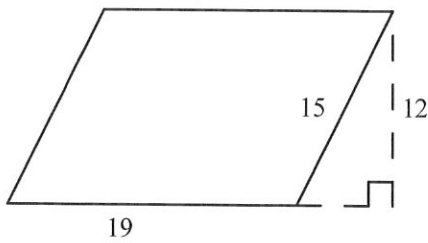
13. The area of the trapezoid shown to the right is found by

- A. $\frac{1}{2}(12 + 13)(10)$
- B. $\frac{1}{2}(12 + 13)(15)$
- C. $\frac{1}{2}(10 + 15)(12)$
- D. $\frac{1}{2}(10 + 15)(13)$
- E. None of These

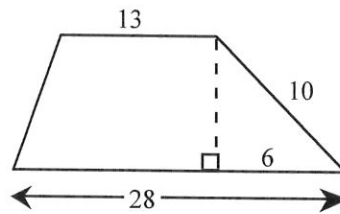


14. Find the **area** of each of these figures.

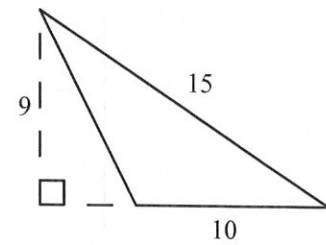
a.



b.



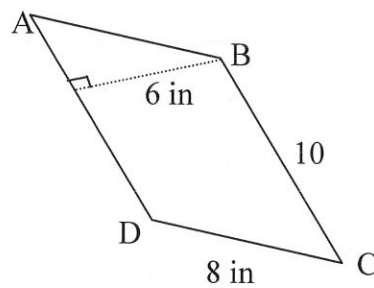
c.



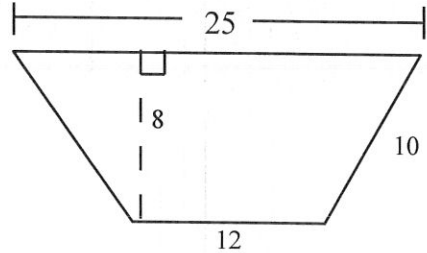
d.



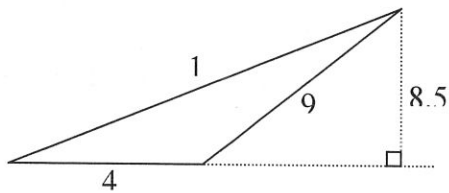
e. Parallelogram ABCD



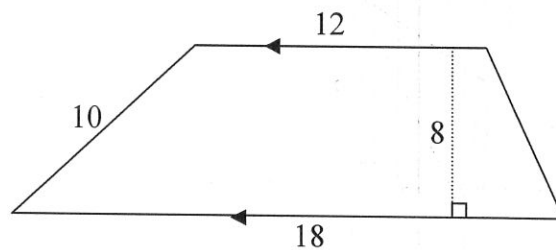
f.



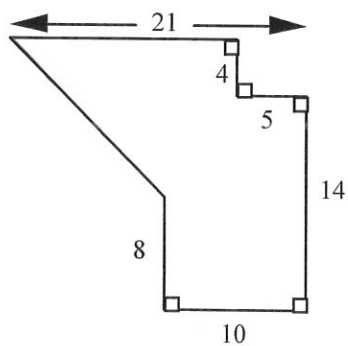
g.



h.

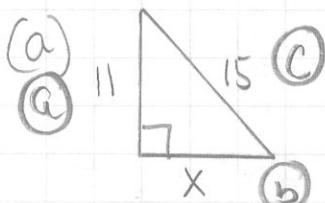


15. Find the area of this figure. Show your dissections and any sub problems you use.



Ch. 2 Review Packet.

(1)



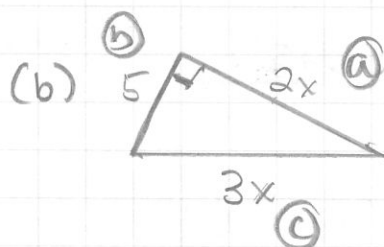
$$(11)^2 + (x)^2 = (15)^2$$

$$121 + x^2 = 225$$

$$-121 \quad -121$$

$$\sqrt{x^2} = \sqrt{104}$$

$$\boxed{x \approx 10.2}$$



$$(2x)^2 + (5)^2 = (3x)^2$$

$$4x^2 + 25 = 9x^2$$

$$\frac{25}{5} = \frac{5x^2}{5}$$

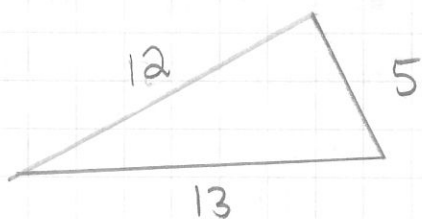
$$\sqrt{5} = \sqrt{x^2}$$

$$\boxed{x \approx 2.2}$$

must isolate the variable

(2) To be able to use pythagorean Theorem you must have a right triangle and either know two of its lengths or have an expression that allows me to figure out those sides

(3) Martha is, however we should never presume anything in mathematics unless we can prove it is correct. So....



$$12^2 + 5^2 = 13^2$$

$$144 + 25 = 169$$

$$169 = 169$$

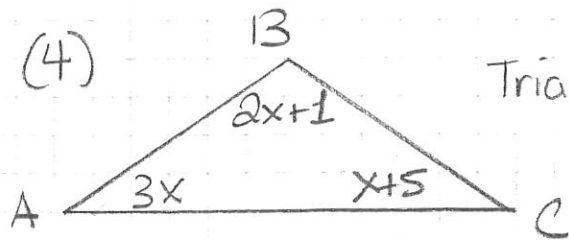


• 13 would have to be the hypotenuse since it is the longest side

• 12 & 5 are the legs then by default.

• if this is a right triangle then $12^2 + 5^2$ will equal 13^2

(4)

Triangle Sum Thm $\rightarrow 180^\circ$

$$(2x+1) + (3x) + (x+5) = 180^\circ$$

$$6x^\circ + 6^\circ = 180^\circ$$

$$-6^\circ \quad -6^\circ$$

$$6x^\circ = 174^\circ$$

$$x = 29^\circ$$

$$m\angle A = 3(29^\circ) = 87^\circ$$

$$m\angle B = 2(29^\circ) + 1^\circ = 59^\circ$$

$$m\angle C = (29^\circ) + 5 = 34^\circ$$

Bella has the incorrect answer. Based upon the triangle angle sum theorem the angles should be

$$m\angle A = 87^\circ, m\angle B = 59^\circ, \text{ \& } m\angle C = 34^\circ.$$

(5)

A

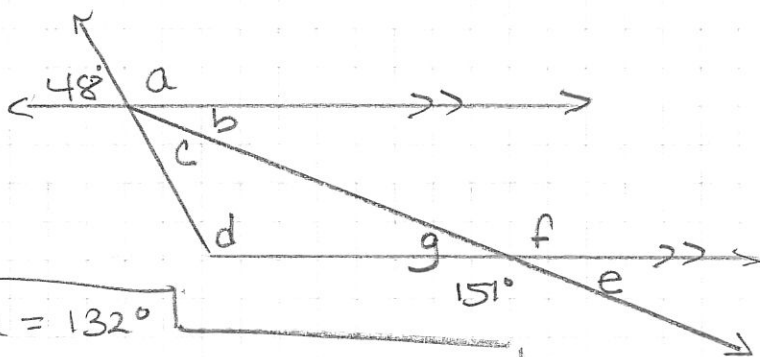
(6)

A

II. can not be because if 4 & 8 are two sides they would have to be a straight line because $4+8=12$.

III. can not be because 17 is too long.

(7)



$$m\angle a = 132^\circ$$

$$m\angle b = 29^\circ$$

$$m\angle c = 19^\circ$$

$$m\angle d = 132^\circ$$

$$m\angle e = 29^\circ$$

$$m\angle f = 151^\circ$$

$$m\angle g = 29^\circ$$

$$m\angle a = 180^\circ - 48^\circ = 132^\circ$$

$$m\angle b = m\angle g = 29^\circ$$

$$m\angle c = 180^\circ - 29^\circ - 132^\circ = 19^\circ$$

$$m\angle d = m\angle a = 132^\circ$$

$$m\angle e = 180 - 151 = 29^\circ$$

$$m\angle f = 151^\circ$$

$$m\angle g = m\angle e = 29^\circ$$

⑧ A

⑨ B

⑩ C

⑪ Straight \angle 's = 180°

(a) $(6x-24) + (2x+12) = 180^\circ$

$$8x - 12 = 180^\circ$$

$$8x = 192^\circ$$

$$\boxed{x = 24}$$

(d) Same side interiors of parallel lines sum to 180°

$$(x+24) + 2x = 180^\circ$$

$$3x + 24 = 180^\circ$$

$$3x = 156^\circ$$

$$\boxed{x = 52^\circ}$$

(f) Vertical angles are congruent

$$2x-10 = x+40$$

$$-x+10 \quad -x+10$$

$$\boxed{x = 50^\circ}$$

(b) Corresponding \angle 's of parallel lines are equal

$$\begin{array}{r} 2x+17 = 3x-4 \\ -2x+4 \quad -2x+4 \end{array}$$

$$\boxed{21^\circ = x}$$

(c) Same side interiors of parallel lines sum to 180°

$$3x + (x+20) = 180^\circ$$

$$4x + 20 = 180^\circ$$

$$4x = 160^\circ$$

$$\boxed{x = 40^\circ}$$

(e) Straight \angle 's = 180°

$$(3x-10) + (2x+30) = 180^\circ$$

$$5x + 20^\circ = 180^\circ$$

$$5x = 160^\circ$$

$$\boxed{x = 32^\circ}$$

(g) Right \angle 's = 90° , a Ray cut the angle into two making them complimentary

$$(x-15) + 2x = 90^\circ$$

$$3x - 15 = 90^\circ$$

$$3x = 105$$

$$\boxed{x = 35^\circ}$$

(12) \boxed{E} $m < 6 \frac{1}{2}$ $m < 1$ are alternating interior angles

(13) \boxed{C} a height is always measured perpendicular to a base, $\therefore 10 \frac{1}{2}$ 15 must be the bases since a trapezoid has two bases, and making 12 the height.

$$\frac{1}{2}(10+15)(12)$$

(14)

(a) $A = bh$

$$A = (19)(12)$$

$$\boxed{A = 228 \text{ u}^2}$$

(b) $A = \frac{1}{2}(b_1 + b_2)h$

$$A = \frac{1}{2}(13 + 28)(8)$$

$$A = \frac{1}{2}(41)(8)$$

$$\boxed{A = 164 \text{ u}^2}$$

pythagorean theorem

$$6^2 + h^2 = 10^2$$

$$36 + h^2 = 100$$

$$\sqrt{h^2} = \sqrt{64}$$

$$h = 8$$

(c) $A = \frac{1}{2}bh$

$$A = \frac{1}{2}(9)(10)$$

$$\boxed{A = 45 \text{ u}^2}$$

(d) $A = \frac{1}{2}bh$

$$A = \frac{1}{2}(4)(3)$$

$$\boxed{A = 6 \text{ u}^2}$$

(e) $A = bh$

$$A = (10)(6)$$

$$\boxed{A = 60 \text{ u}^2}$$

(f) $A = \frac{1}{2}(b_1 + b_2)h$

$$A = \frac{1}{2}(12 + 25)(8)$$

$$\boxed{A = 148 \text{ u}^2}$$

(g) $A = \frac{1}{2}bh$

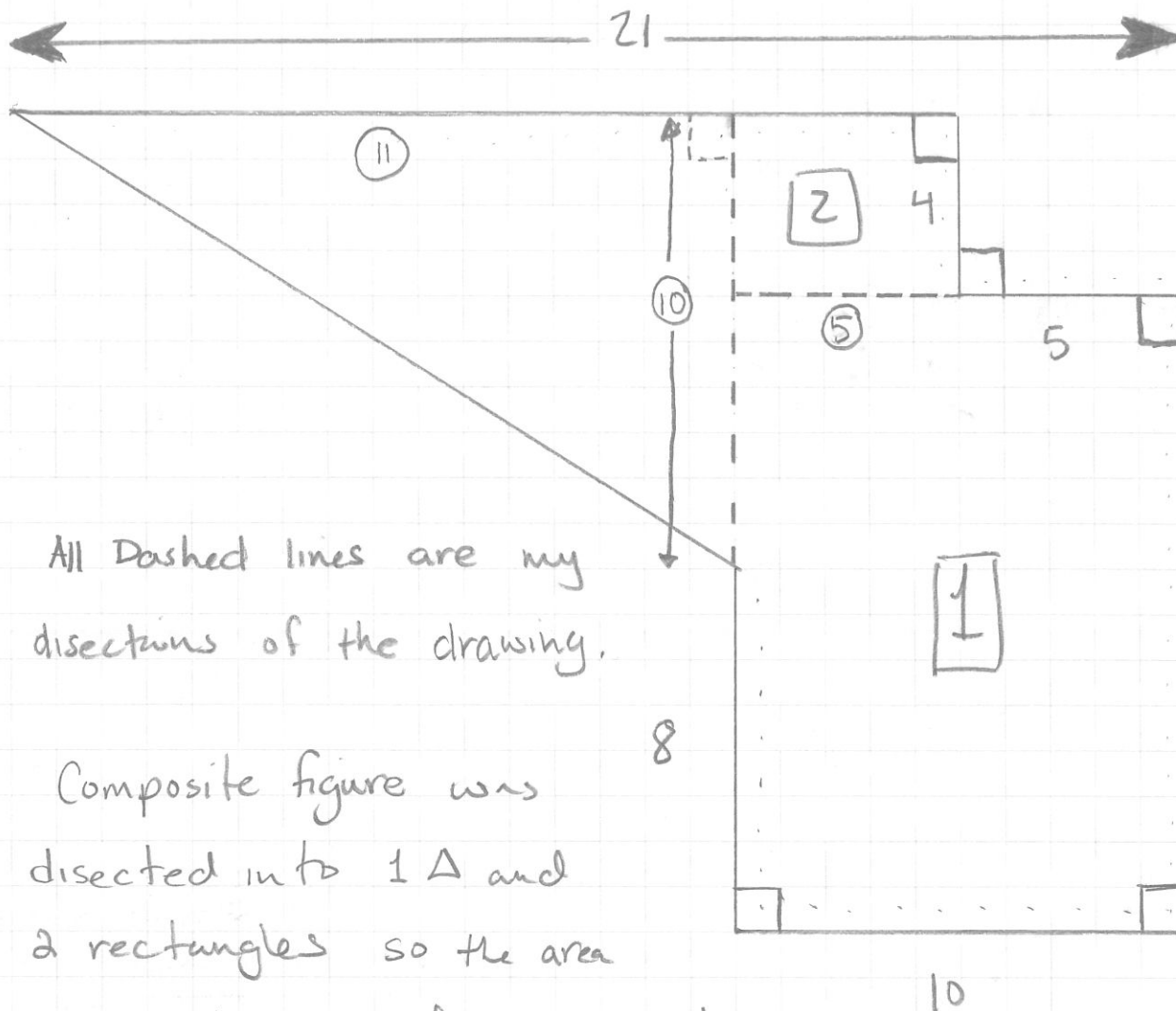
$$A = \frac{1}{2}(4)(8.5)$$

$$\boxed{A = 17 \text{ u}^2}$$

(h) $A = \frac{1}{2}(b_1 + b_2)(w)$

$$= \frac{1}{2}(12 + 18)(8)$$

$$\boxed{A = 120 \text{ u}^2}$$



All Dashed lines are my dissections of the drawing.

Composite figure was dissected into 1 Δ and 2 rectangles so the area equals the sum of theirs together.

$$A = \Delta + [1] + [2]$$

$$A = \frac{1}{2}bh + bh + bh$$

$$= \frac{1}{2}(10)(11) + 10(14) + 5(4)$$

$$A = 215 u^2$$

* Note you can't extend the diagonal line because it does not directly connect to another vertex.

All circled numbers are calculated lengths

$$\textcircled{10} = (14+4) - 8 = 18 - 8 = 10$$

$$\textcircled{11} = 21 - 10 = 11$$

$$\textcircled{5} \Rightarrow 5 + x = 10$$

$$x = 5$$